

Two best  
nicking enzymes  
selected

Select nicking  
enzymes

BspQ1  
*De novo*  
assembly 1

BbvCI  
*De novo*  
assembly 1

*De novo*  
assembly 2

*De novo*  
assembly 2

Hybrid scaffold

Hybrid scaffold

Final merged Optical Map (OM)  
(Chromosome)

**S1 Fig. Optical Map assembly (1 of 14 slides)**

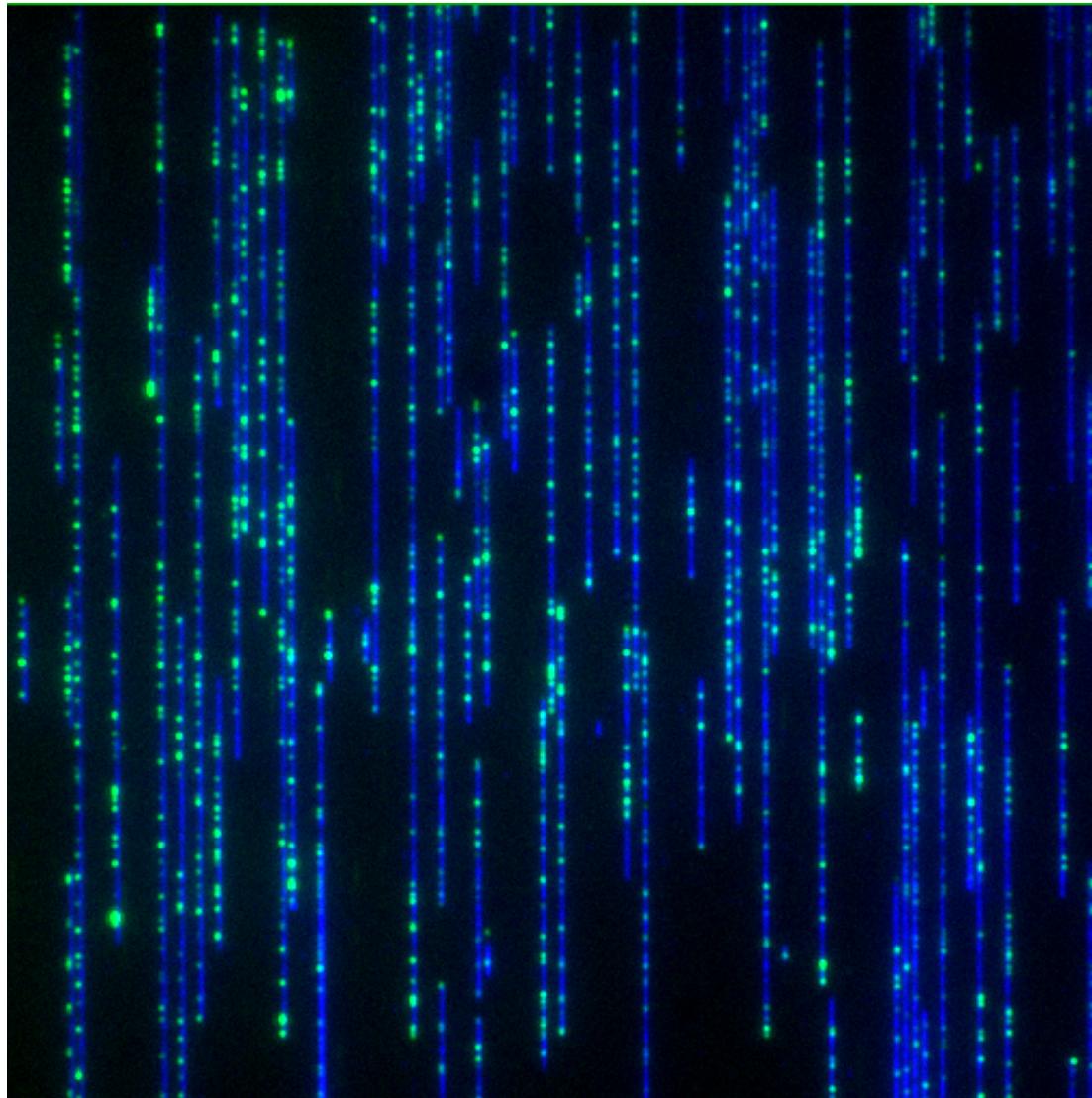
Table M4 restriction enzyme nicking density and labels per 100kb

<b>Enzyme</b>	<b>NickDensity (Nicks/ 100kb)</b>	<b>LabelDensity (Labels/ 100kb)</b>
Nt.BspQ1	26.17856	17.95897
Nb.BsmI	50.15073	27.85473
NbBbvCI	20.38771	14.86319
Nb.BsrD1	66.08656	32.1038
Nb.BssSI	43.95672	25.75829

Table M4 Restriction enzyme molecule fragment statistics

<b>Enzyme</b>	<b>BbvC1</b>	<b>BspQ1</b>
Min molecule length for assembly (kb)	150	150
Mapped Molecule Quantity (Mb)	9,949.13	76,661.32
Mapped Avg Size (Kb)	199	220
Avg Label Density (per 100 Kb)	13.9	14.9
Number of Consensus Genome Maps	44	76
Consensus Genome Maps Size (Mb)	41.332	68.999
Consensus Genome Maps N50 (Mb)	1.352	1.052
Avg Depth of Molecule Coverage	100.8	99.6

## S1 Fig. Optical Mapping Statistics (2 of 14 slides)



**S1 Fig. Image of M4 Optical mapping (3 of 14 slides)**

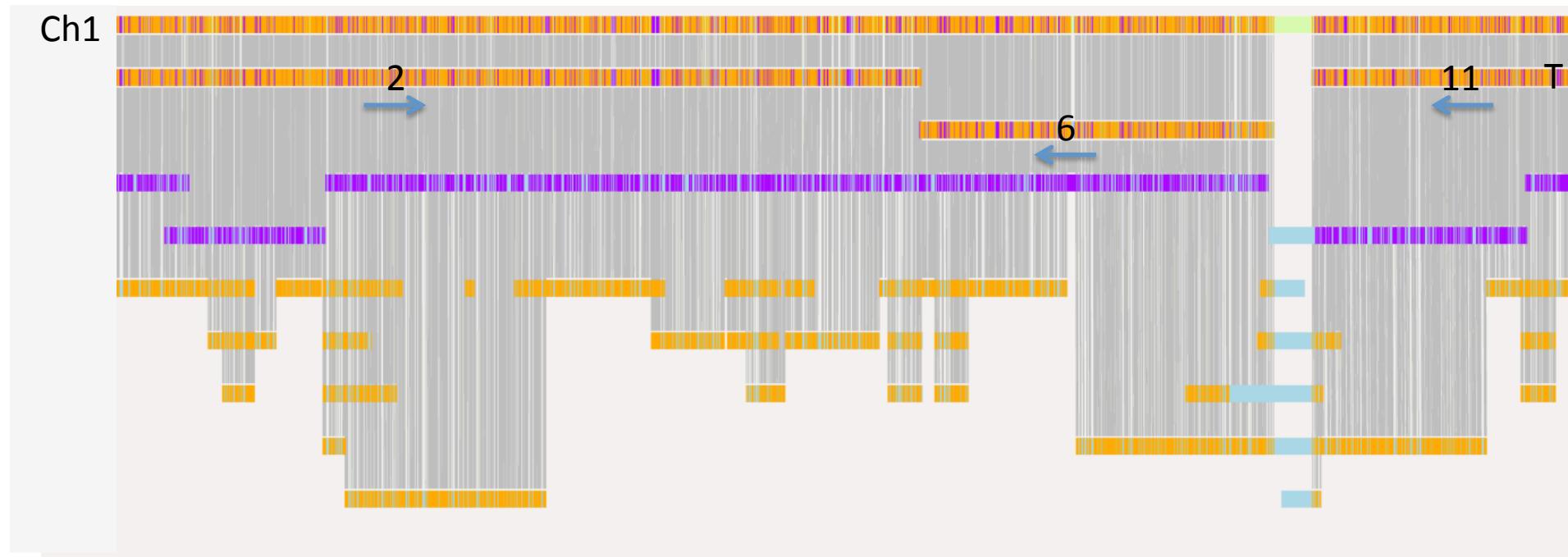


Figure shows the Final Optical Map of M4 Chr1 (H4) (10Mb) (top) and the alignment of 1) *in silico* digested M4 contigs (2, 6 & 11) (middle orange bars 2) M4 enzyme Nt.BbvC1 optical maps (purple) and 3) M4 enzyme Nt.BspQ1 optical maps (bottom yellow). Telomeres are also shown (T).

### S1 Fig. M4 Optical Map for Chromosome 1 (4 of 14 slides)

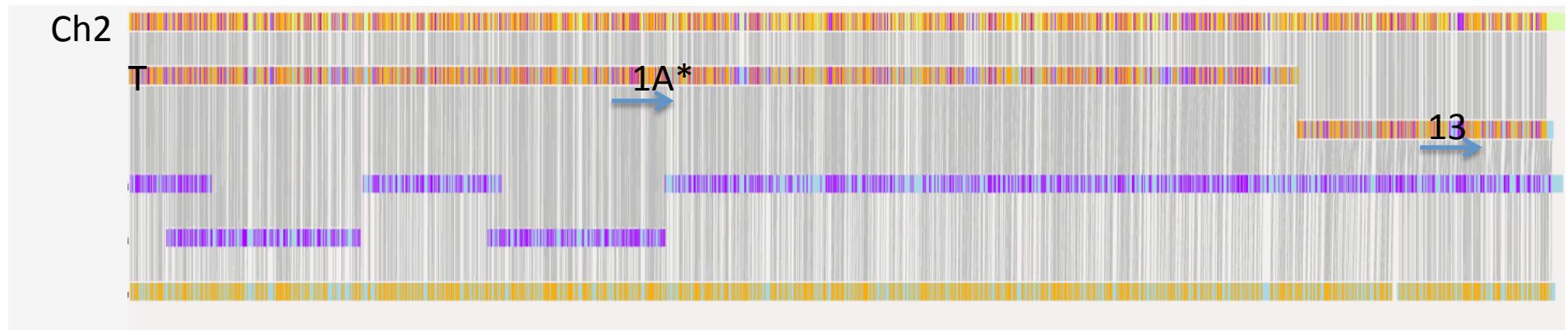


Figure shows the Final Optical Map of M4 Chr2 (H2) (5.1Mb) (top) and the alignment of 1) *in silico* digested M4 contigs 1A\* and 13 (middle orange bars 2) M4 enzyme Nt.BbvC1 optical maps (purple) and 3) M4 enzyme Nt.BspQ1 optical maps (bottom yellow). Telomeres are also shown (T).

\*Refer to slide 14

### S1 Fig. M4 Optical Map for Chromosome 2 (5 of 14 slides)



Figure shows the Final Optical Map of M4 Chr3 (H7) (3.6Mb) (top) and the alignment of 1) *in silico* digested M4 contig 3 (middle orange bars 2) M4 enzyme Nt.BbvC1 optical maps (purple) and 3) M4 enzyme Nt.BspQ1 optical maps (bottom yellow). Telomeres are also shown (T).

### S1 Fig. M4 Optical Map for Chromosome 3 (6 of 14 slides)

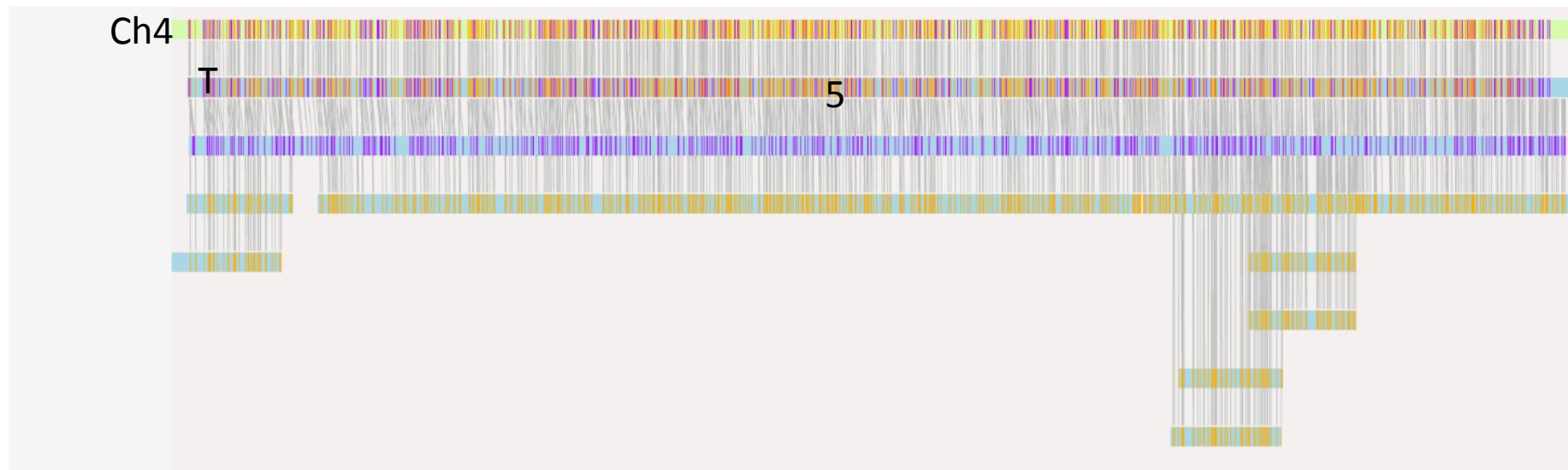


Figure shows the Final Optical Map of M4 Chr4 (H9) (3.1Mb) (top) and the alignment of 1) *in silico* digested M4 contig 5 (middle orange bars 2) M4 enzyme Nt.BbvC1 optical maps (purple) and 3) M4 enzyme Nt.BspQ1 optical maps (bottom yellow). Telomeres are also shown (T).

### S1 Fig. M4 Optical Map for Chromosome 4 (7 of 14 slides)

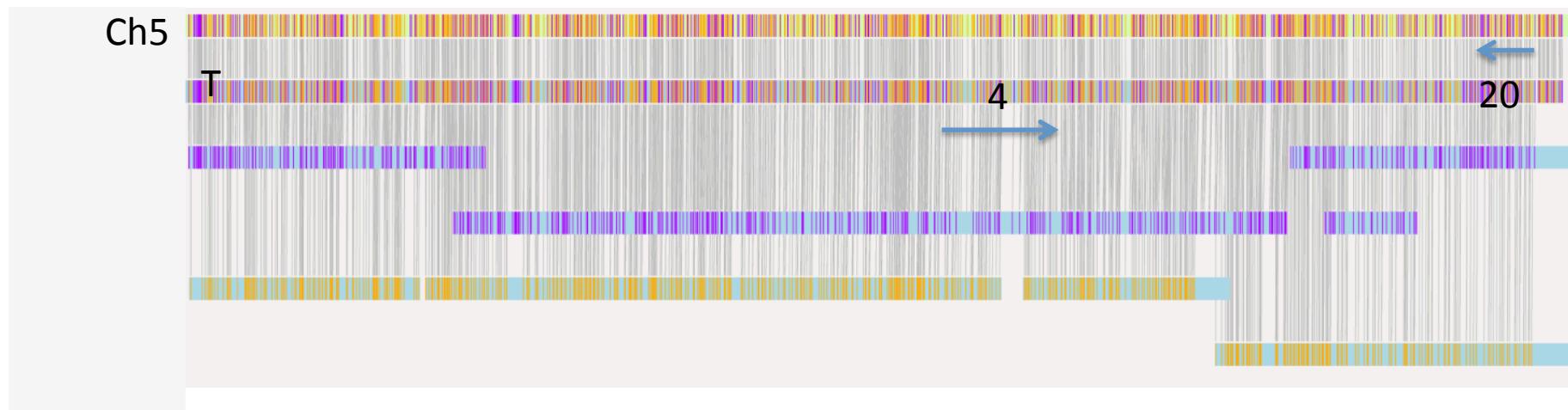


Figure shows the Final Optical Map of M4 Chr5 (H8) (3.4Mb) (top) and the alignment of 1) *in silico* digested M4 contigs 4 and 20 (middle orange bars 2) M4 enzyme Nt.BbvC1 optical maps (purple) and 3) M4 enzyme Nt.BspQ1 optical maps (bottom yellow). Telomeres are also shown (T).

### S1 Fig. M4 Optical Map for Chromosome 5 (8 of 14 slides)

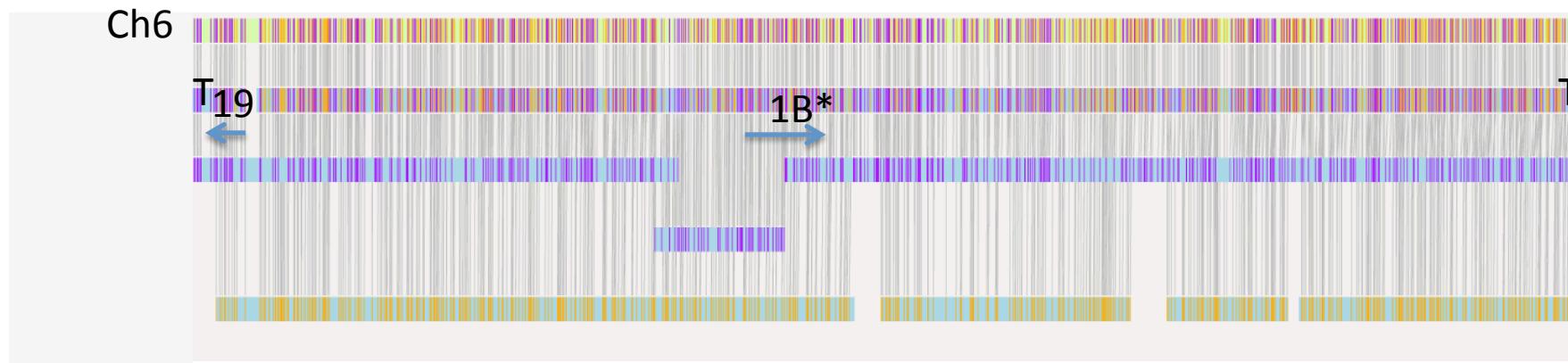


Figure shows the Final Optical Map of M4 Chr6 (H6) (3.0Mb) (top) and the alignment of 1) *in silico* digested M4 contigs 19 and 1B\* (middle orange bars 2) M4 enzyme Nt.BbvC1 optical maps (purple) and 3) M4 enzyme Nt.BspQ1 optical maps (bottom yellow). Telomeres are also shown (T).

\*Refer to slide 14

### S1 Fig. M4 Optical Map for Chromosome 6 (9 of 14 slides)



Figure shows the Final Optical Map of M4 Chr7 (H1) (2.8Mb) (top) and the alignment of 1) *in silico* digested M4 contigs 15, 14 & 12 (middle orange bars), 2) M4 enzyme Nt.BbvC1 optical maps (purple) and 3) M4 enzyme Nt.BspQ1 optical maps (bottom yellow). Telomeres are also shown (T).

### S1 Fig. M4 Optical Map for Chromosome 7 (10 of 14 slides)

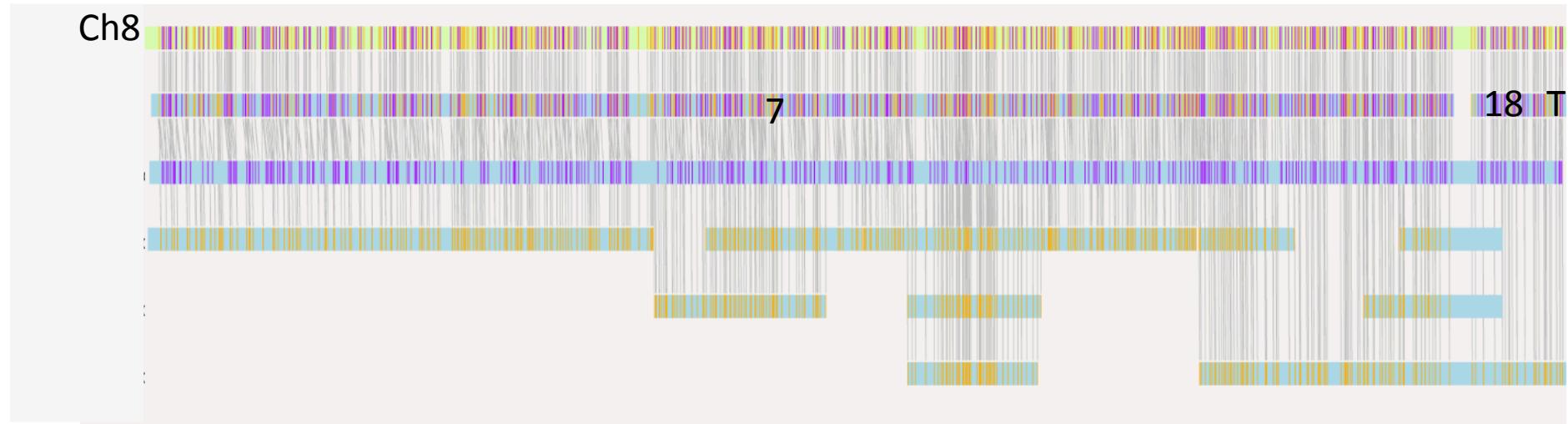


Figure shows the Final Optical Map of M4 Chr8 (H5) (2.4Mb) (top) and the alignment of 1) *in silico* digested M4 contigs 7 & 18 (middle orange bars), 2) M4 enzyme Nt.BbvC1 optical maps (purple) and 3) M4 enzyme Nt.BspQ1 optical maps (bottom yellow). Telomeres are also shown (T).

### S1 Fig. M4 Optical Map for Chromosome 8 (11 of 14 slides)

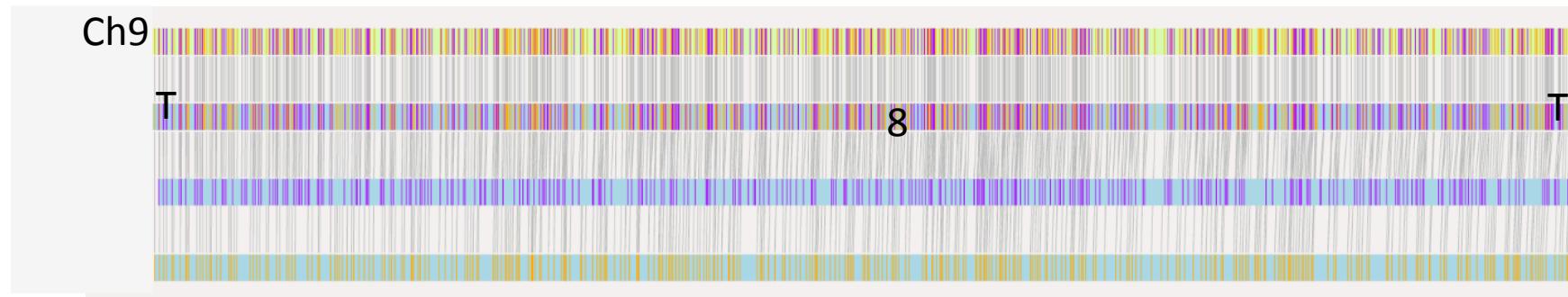


Figure shows the Final Optical Map of M4 Chr9 (H10) (1.5Mb) (top) and the alignment of 1) *in silico* digested M4 contig 8 (middle orange bars), 2) M4 enzyme Nt.BbvC1 optical map (purple) and 3) M4 enzyme Nt.BspQ1 optical map (bottom yellow). Telomeres are also shown (T).

### S1 Fig. M4 Optical Map for Chromosome 9 (12 of 14 slides)

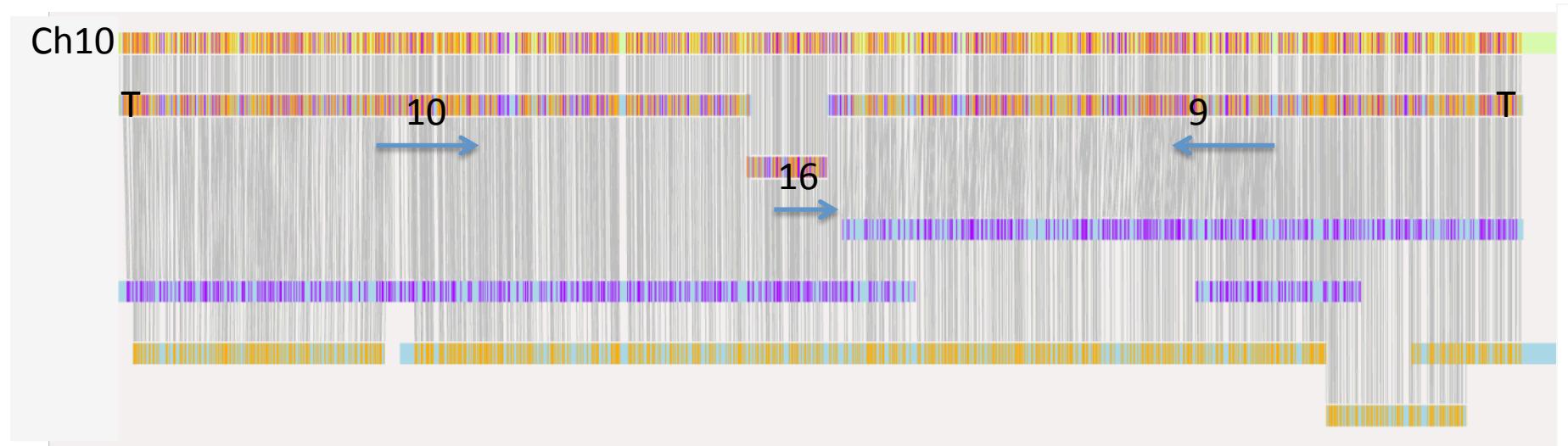


Figure shows the Final Optical Map of M4 Chr10 (H10) (4.3Mb) (top) and the alignment of 1) *in silico* digested M4 contig 10, 16 & 9 (middle orange bars), 2) M4 enzyme Nt.BbvC1 optical map (purple) and 3) M4 enzyme Nt.BspQ1 optical map (bottom yellow). Telomeres are also shown (T).

### S1 Fig. M4 Optical Map for Chromosome 10 (13 of 14 slides)

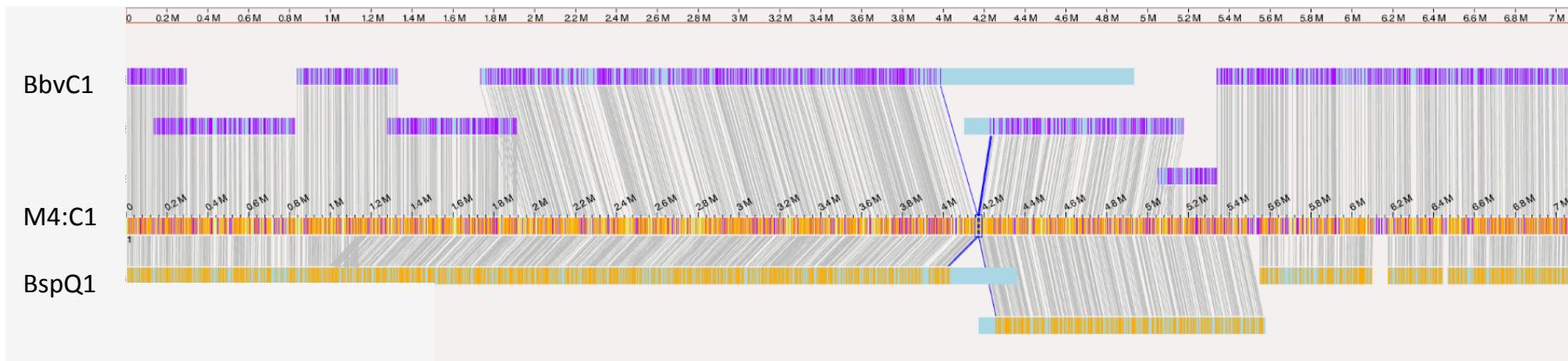


Figure shows the alignment of the M4 enzyme Nt.BbvC1 optical map (purple) and M4 enzyme Nt.BspQ1 optical map (bottom yellow) to the *in silico* digested M4 contig 1 (7Mb) (middle orange bar), and lack of support at the ~4Mb region.

## S1 Fig. M4 contig1 two enzyme optical map alignments